

Extended Web enabled Business to Business
Computer System for Rental Vehicle Services

Cross Reference to Related Application

This application is a continuation-in-part of serial no. 09/641,820, filed August 18, 2000.

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Reference to a Computer Program Listing Appendix Submitted on Compact Disc

This application includes a computer program listing appendix submitted on a compact disc, the compact disc containing the files "Exhibit A.txt" (file created December 28, 2010; file size of 316 kilobytes), "Exhibit C.txt" (file created December 28, 2010; file size of 534 kilobytes), and "Exhibit D.txt" (file created December 28, 2010; file size of 261 kilobytes), these files being incorporated herein by reference.

Introduction

The invention disclosed and claimed in the parent cross referenced above relates generally to the field of an Internet enabled business-to-business intelligent communication link allowing a first business organization to have intelligent interaction with a second fully integrated business organization to facilitate the placing of orders or reservations for business services or goods, with the services or goods provider having a computer network linking multiple levels of its organization to provide for the smooth conduct of business between the two organizations. More particularly, this field relates to an Internet enabled automatic rental vehicle transaction system to facilitate the conduct of rental vehicle transactions between two multilevel business organizations, one of which provides such rental vehicle transaction services in an integrated manner through business enterprise software to a high volume user of such rental vehicle services wherein an Internet web portal is defined by the rental vehicle service provider which interconnects the two business organizations at multiple levels, providing a graphical user interface (GUI)for the transaction of large amounts of rental vehicle services automatically and virtually without human intervention upon entry. The

invention of the present continuation-in-part application extends the functionality of the parent invention by providing an intelligent portal that is readily configurable to suit any particular customer and any particular provider data requirements or method of doing business. This added functionality allows the invention, for example, to provide the user

- 5 with access to other suppliers in the same seamless and integrated manner. In other words, the user now has access to not just one integrated business but multiple businesses, some of which may but need not be, integrated businesses thereby extending the invention for use in a generic application to satisfy a user's needs for a good or service not just from one vendor but all vendors connected to the invention.

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Background of the Invention

Computer technology has been embraced by many businesses in order to handle their ever increasing order flow as well as to mitigate the increasing blizzard of paper required to be produced to document this business. A significant benefit which often drives the implementation of technology is its further advantage in increasing productivity to thereby allow fewer people to handle greater volumes of business. One such good example demonstrating the efficiencies and value to be gained by implementing technology is the business model developed and followed by the assignee of the present invention. A rental car company at its heart, the assignee transacts an ever increasing number of time sensitive, relatively low dollar volume, vehicle rentals which in many instances require authorizations to be made in advance, reservations of vehicles from available geographic and vehicle type selections, monitoring of the rental as it progresses including possibly extending the rental under certain circumstances, communications between the various parties involved in the transaction to ensure ultimate customer satisfaction, and financial accounting for the transaction including generating invoices and processing them for payment. While a significant portion of the vehicle rental business involves rental for leisure, business travel, etc., another significant business relationship has developed with insurance companies and the like in what has been termed as the replacement car rental service business. In this business, a vehicle insurance company may have many thousands of policyholders who are eligible to be involved in accidents, and other dislocations of use, requiring that a vehicle be rented for that customer's use while his own vehicle be made ready again for use. Thus, for this business segment, a multi-tiered business organization such as a vehicle

insurance company represents a significant customer for repetitive vehicle rental services. To conduct this business in an orderly, time efficient and cost efficient manner, it is necessary that this insurance company has as its business partner a vehicle rental company which is itself multi-tiered, such as the assignee of the present invention. This

- 5 is because the needs, both geographically and in volume, are significant which require the dedication of a significant amount of resources. To satisfy these needs and to respond to other business growth, in its embrace of technology the assignee hereof has succeeded in developing an in-house computer system and related software which has integrated its business internally. This business integration has been massive and
- 10 company-wide as is needed to integrate a company having a central office with literally thousands of individual branches located nationally, and even now internationally, with hundreds of thousands of vehicles available for rental. Furthermore, other business partners including other service providers such as vehicle repair shops have also been given access to this system to allow for input of information relating to progress of
- 15 vehicle repair, extension of rental time, etc. as the rental progresses. This integrated business computer network and software generally includes a mainframe server at the heart of a wide area network (WAN) which facilitates the transfer of vehicle rental information and orders company-wide. This integrated business model is most efficient and needed in order to satisfy the vehicle rental service needs of a vehicle insurance
- 20 company which itself may be national or even international in scope.

As a first step in extending the integration of technology into this business model, the present assignee has previously developed and implemented a computer system which has provided improved communication capabilities between the two business partners. This system generally comprised a second mainframe computer linked to the

25 first mainframe of the integrated business network, with dedicated access lines being provided from this second mainframe to various levels of the multilevel business organization comprising the insurance company. In effect, with this additional mainframe and dedicated pipeline access, various individuals at the insurance company were permitted to directly interact with the integrated business computer network of the

30 vehicle rental company as well as other selected service providers such as body shops where wrecked vehicles were being repaired. The implementation of this system provided a great step forward over the people intensive business activity previously required in order to handle the large number of transactions encountered in this

business relationship. Historically, the replacement car market engendered large numbers of telephone calls being placed between the insurance company, the rental company, and the body shop where vehicle repair was being performed in order to authorize the rental, select and secure the desired replacement vehicle to be provided,

- 5 monitor the progress of the repair work so that scheduling of the rental vehicle could be controlled, extending the vehicle rental in the event of delays in repair, authorizing various activities involved in the rental process including upgrades of vehicles or other charges for services, and subsequent billing of the rental service and processing the billing to the insurance company for payment.

- 10 While the implementation of this system was successful and represented a tremendous step forward in automating the business relationship between the insurance company and the vehicle rental company, it did have certain limitations. For example, a specific communication link had to be established between the rental vehicle company and the particular users at the insurance company designated to have access to this
- 15 system. Thus, special attention and some modicum of expense was required to establish these "pipelines" and maintain them. Still another aspect to the system implemented was that it was not "browser" based nor did it provide graphical user interface (GUI) menus. Thus, each user had to be specifically trained in the particular "language" used by the system and learn to work with specific menus nested in a
- 20 specific manner as well as codes for entering commands which were not similar to other computer software programs. This software design thus necessarily required additional training in order to insure that users could gain the full measure of advantage provided by the system and in order to minimize the opportunity for erroneous information or incorrect reservations from being entered or otherwise confusing the business
- 25 transactions. Furthermore, user efficiency was not immediate and required skill beyond that ordinarily found in casual computer users, as we are all becoming in this computer age. Still another disadvantage to the system was that access was required to a designated entry point in the system in order for a person authorized to be on the system to work with it. As the nature of the insurance and replacement car business requires
- 30 extreme mobility at multiple levels of both business partners, this represents a limitation to the usefulness and time efficiency with which various business functions could be performed. Therefore, while implementation of the second mainframe allowing for pipeline connections at various levels of the multi-tiered insurance company was a

significant step forward in automating the business relationship between the two business partners, significant limitations to this solution were readily apparent to the users thereof.

5 Summary of the Invention

In the parent application cross-referenced above, the inventors herein have succeeded in designing and developing a means for substantially enhancing the business to business communication link between these two businesses which provide significant advantages over its prior embodiment. More particularly, the inventors have
10 succeeded in replacing the dedicated pipeline access of the existing system with a web portal allowing Internet access to the mainframe with a browser based graphical user interface (GUI) presentation. This also made the system more readily accessible to smaller business partners as the expense of the "pipeline" was eliminated. The parent invention offers several important technical advantages over the previous system. First
15 of all, by taking advantage of the ubiquitous nature of the Internet, the ultimate in portability and connectivity for this system is now provided in a business environment where mobility and connectivity are at a premium. In other words, a claims adjuster, body shop, or any other business employee authorized to have access to the system may gain access at any site offering Internet access. In present day technology that
20 includes many mobile devices and appliances which are Internet enabled. As technology advances, it is conceivable that this access will extend to permit "24/7" access by any authorized person at any geographic location. This is a marked improvement providing immediate benefit and advantage over the dedicated pipeline access of the prior art system.

25 A second major advantage of the parent invention is its graphical user interface. The inventors have taken full advantage of this browser based GUI to streamline and organize the presentation of information to a user to actually guide him as he interacts in doing his business. One such example is customized design of the menus such that the user is guided and directed to answer only those questions required to be answered in
30 order to conduct the particular transaction being addressed, and further to present choices to the user for his selection to minimize the need for the user to rely on his own memory or to be familiar with complicated and specialized codes to enter data or request transaction activity. With the recent and continuing explosion of the Internet, more

people are becoming familiar with browser programs and their operation through their own daily activities in their personal lives. This familiarity paves the way for easier training and quicker orientation of a new user to the present invention. For large business organizations communicating at multiple levels, this significant advantage

5 cannot be minimized as there are large numbers of people who must be continuously trained due to the growth of the organizations, as well as the replacement of employees due to the inevitable attrition. Thus, the parent invention provides an immediate increase in worker productivity, and makes that improved efficiency available to many more workers who are not particularly skilled otherwise in computer usage.

10 Still another advantage provided by the parent invention is through the implementation of additional functionalities which are engendered by the browser/GUI interface. As the system is continuously used, and feedback is continuously monitored and analyzed, additional features that add value through providing management information as well as by speeding transaction activity over the system may be

15 implemented. For example, several of these features include the ability of a user to create an on demand report for transaction activity including summaries of transactions handled by a particular user or group of users which might either be open or closed. Another example of additional functionality which improves the efficiency of a user is the ability to create a repair facility call back list which allows a user to sort existing open

20 vehicle rental reservations by repair facility (body shop) and date such that a user is presented with the list of open reservations at a particular repair facility which can be readily handled in a single telephone call while at the same time having the system on line to implement any needed changes such as extensions of reservations, etc.

Additional functionality has also been provided to speed the processing of invoicing
25 which of course also speeds their payment and cash receipts. For example, it was found that even despite the built-in error checking and correction facilities provided to the users of the system, a repetitive pattern of mistakes involving incorrect claim numbers was discovered. To speed the processing of these, an additional functionality was provided as an "electronic audit" known as invoice return which returns an invoice to a particular adjuster upon detection of an incorrect claim number for his human intervention and correction of the claim number. In this manner, problem invoices exhibiting one of the most common problems encountered may be readily handled within the system and in an efficient manner, instead of manually as before.

The parent invention also has as a significant advantage the ability to be further customized to meet the individual business partners' needs and desires as well as to provide additional functionality by offering additional features which become desirable upon accumulation of user data based on user experience. Furthermore, once

- 5 implemented, they are immediately available system wide. While this allows for consistent usage, it is limited in the sense that all of the system users are forced to use the same menus, data definitions, etc. This is not seen as a limitation for the one-to-one business application intended to be primarily addressed by the parent invention.

Still another advantage of the parent invention is that the graphical user interface
10 incorporates point and click interaction, using buttons and tabs to present or conceal data for the user's attention or inattention as the case may be, and provide a much more robust interaction capability through the creation of menu designs that allow for access to the most commonly needed features from any point in the menu architecture. This is to be contrasted with the prior system which consisted of a main frame character based
15 interface while the parent invention with its GUI interface allows a user to point and click to navigate and to make selections by pull down selection, thereby reducing errors. As users become more experienced with the system, and their confidence level grows, they are much more likely to become bored and aggravated with the rigid structure of the prior system requiring them to follow along a certain menu architecture in order to
20 complete certain tasks. On the other hand, the parent invention generally increases the interest of the user in using the system. These advantages of the parent invention over the prior interface promote employee productivity by allowing a user more control over his work which is critical in achieving savings in human resources to operate the system which is one of its main goals.

25 The present invention extends the parent invention and expands its capabilities and functionalities. With the present invention, a user may not only have access to its business partner, but also one or more competitors of its business partner through the same Internet portal. In this way, at least two needs are satisfied. First, the user can have access to a variety of providers to choose from where business needs or desires
30 require. This allows the user to use a single portal and not have to sign on to a number of different portals, even should they be available. Furthermore, the user isn't troubled to learn how to access and use different portals even should they be available. Presently, not all providers are operating an Internet portal for offering their services, so by allowing

business competitors to be accessible through the same portal, independent development of other portals is forestalled. This is a benefit to the operator of the main portal as it creates and maintains a competitive advantage by handling all of the order flow which creates a data base of useful information for marketing purposes. Although

- 5 initially the portal services might be offered for no additional cost to a competitor, eventually a fee might be charged which would at least partially offset the cost for owning and operating the portal.

The design of the portal is elegant and offers great flexibility for customizing not only the menus for presentation to the user, but also in the design of the data base
10 entries needed or desired by the user and/or the competitive provider. For example, some users might not know or care about the features of a vehicle rented and so those data entries may not be provided space on the menu for the user to fill in. The data base as handled by the networked computer system then need not keep track of that data for that customer. This feature is readily accommodated by the data base
15 programming and is conveniently implemented.

In still another aspect of the present invention, the web portal has the capability to accommodate the varying data requirements also of the various competitive providers, but also the level of their sophistication as evidenced in their respective computer systems and interface facilities. For example, the web portal may be
20 configured to communicate the user's order to the competitive provider via email, phone, or even through a connection directly to an integrated computer system having the same or substantially the same inter-operability as the integrated computer system of the assignee hereof. This capability extends to accommodating and matching the competing data requirements of the user and the competitive providers, and having the
25 flexibility to design and implement menus that readily meet these competing needs. Furthermore, the present invention allows for changes to be implemented by simple re-programming of the web portal which minimizes the effort and enhances the "user friendly" aspect to the present invention.

Not only are these "global" improvements made available with the present
30 invention, there are other more particularized improvements that add functionality within the operating framework of the parent invention. For example, one such improvement is the ability to "virtually" assign work groups within the user so that, for example, multiple adjusters might be made into a team with a shared work load so that all of the team

members have access to the same pool of work, such as the placing of reservations for the same group of drivers. With this "virtual team" assignment capability, work groups may be readily re-assigned to match changing work loads without worrying about re-configuring hardware or internal network connections. This can be a very valuable

- 5 feature to accommodate staffing issues over geographical distances that can be nation-wide, with access through the web portal to reservation facilities which are themselves nation-wide.

Still another feature is the ability to customize an individual user's authorization limits. As can be appreciated, one of the mixed blessings of providing enhanced

- 10 functionality to the individual user's of any integrated computer system is that it places great power in the hands of the user which at the same time creates the potential for abuse. There have been well publicized instances of "rogue" employees making financial decisions or placing instructions which have far reaching financial consequences well beyond the intended authority of an employee, with disastrous
15 results. With the present invention, one feature is the ability to limit the financial commitments that a user may make during any pre-selected time period. For example, the user's profile may limit his ability to make only a certain dollar limit of vehicle reservations over any certain number of work days. In this way, added safe guards may be conveniently provided, monitored by reporting capabilities, and changes as
20 circumstances warrant, all with simple programming changes at the web portal.

There are still other features that are provided by the present invention that find their genesis in the different approach taken over the parent invention and owing to the inherent increased flexibility of using a web based programming for the web portal to interface between the user and the providers on the web server and eliminating the need
25 for any custom software on the user's terminal. The details of these are to be found and described in the detailed description of the preferred embodiment below. Examples include the ability to send confirmatory communications to the user that the reservation has been received and entered into the provider's system for fulfillment, custom report design including the capability to save and re-generate the custom report upon user
30 command, increased flexibility to process and pay invoices, etc.

While the principal advantages and features of the invention have been discussed above, a greater understanding of the invention including a fuller description

of its other advantages and features may be attained by referring to the drawings and the detailed description of the preferred embodiment which follow.

Brief Description of the Drawings

5 Figure 1 is a schematic diagram of the computer systems comprising the parent invention;

 Figure 2 is a flow chart of the software programs which communicate over the computer systems of fig. 1 to implement the parent invention; and

10 Figure 3 is a schematic diagram of the computer systems comprising the present invention.

 Figures 4-91 are flow diagrams for software resident on the mainframe AS/400 computer 32 as described in Exhibits B and C.

 Figures 92-159 are a series of flow diagrams and screenshots for the ARMS/WEB application software resident on servers 70 as described in Exhibit E.

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Detailed Description of the Preferred Embodiment

The overall system architecture for the parent invention 20 is best shown in Fig.

1. As shown therein, an insurance company computer system 22, which itself may be virtually any computer configuration or even a stand alone PC accesses the Internet 24

20 through any convenient access point 26 such as even including an ISP (Internet service provider), as known in the art. Also connected to the Internet 24 is a web portal 28 which is preferably provided by a server appropriately programmed as explained herein below. This web portal 28 may be appropriate configured as desired to suit any particular business relationship or arrangement, although preferably the inventors herein

25 and assignee of this invention have determined that a 24/7 or full time connection to the Internet 24 is preferable, except for scheduled downtimes for maintenance, etc. The service provider 30 which for purposes of explaining the parent preferred embodiment is preferably a vehicle rental organization, has itself an Internet portal mainframe 32 connected by a bi-directional communication link 34 to a second computer network 36

30 which may itself preferably have a mainframe server 38. This second computer system 36 is preferably a network having a database 40 for communication with what may be thousands of branch offices each of which has its own computer interface 44 which communicates to this second mainframe server 38 to conduct the integrated business

functions of a service provider organization. Instead of communicating with the branch offices directly, a reservation may be communicated to a centralized location for further processing, such as a call center, and then relayed on to an appropriate branch office. This might be desirable under certain circumstances, such as if a branch office is closed,

- 5 or when a purchaser requires some specialized service such as close monitoring of the rental. This may be done electronically and automatically, or with human intervention.

It should be noted that the particular computer configuration chosen as the preferred embodiment of the parent invention may itself be subject to wide variation. Furthermore, the term "mainframe" as used herein refers solely to a computer which can

- 10 provide large scale processing of large numbers of transactions in a timely enough manner to suit the particular business application. Preferably, as is presently used by the assignee hereof, an IBM AS/400 mainframe computer is used as each of computers 32, 38. However, as is well known in the art, computer technology is subject to rapid change and it is difficult if not impossible to predict how these computer systems may
15 evolve as technology advances in this art. For example, it is not beyond the realm of possibility that in the not so distant future a network of computers would provide the processing power to conduct these business operations as presently handled by "mainframe" computers. Thus, the term "mainframe" is not used in a limiting sense but merely to indicate that it is descriptive of a computer suited to handle the processing
20 needs for a large scale business application.

It should also be noted that the communication link 46 extending between the server 42 and each of the branch offices 44 may have alternative configurations. For example, in some applications access over the Internet may itself be adequate, recognizing the vagaries of Internet service availability, reliability, and processing speed.

- 25 Alternatively, this communication link 46 could well be a dedicated pipeline providing broadband service connection full time with back up connections to ensure continuous communication between a particular branch office or groups of branch offices and the service providers business operations computer system 36. Some branch offices might even be served through satellite links. Indeed, it is even possible that a mixture of these
30 wide variations of service level be present within a single organization's structure depending upon communication link cost and availability balanced against service needs. It should merely be noted for present purposes that this communication link 46

serves as the electronic umbilical cord through which branch offices 44 communicate with the business computer system 36 of the present invention.

Attached hereto as exhibits are functional descriptions of the software programs resident on the computers comprising the two computer systems 32, 38 which

- 5 implement the parent invention. More particularly, attached hereto as Exhibit A is a functional description of the software to implement the integrated business functions resident on the AS/400 or mainframe computer 38. Attached hereto as Exhibits B and C are related flow diagrams (see Figures 4-91 of Exhibit B) and explanatory text, respectively, for the software resident on the mainframe AS/400 computer 32. Attached
10 hereto as Exhibit D is a functional description of the software resident on computer 32 but which also appears on the server 28 which creates the web portal for access to the mainframe 32 and its resident program. Server 28 may use a bi-directional GUI to character based interface translator program, well known to those skilled in the art, to present the displays and information obtained and transmitted between the user and the
15 computer 32. However, the software of Exhibit D could also be run on server 28, as would be appreciated by those of skill in the art. It is believed that these functional descriptions and accompanying text as exemplified in these exhibits are adequate to enable an ordinary programmer to implement corresponding software programs for executing the preferred embodiment of the parent invention using ordinary programming
20 skills and without inventive effort.

As a further example of the flow of data and the functional advantages provided by the parent invention, reference is made to Fig. 2. As shown therein, a right hand column is identified as "ECARS" which represents the integrated business software implemented as part of the mainframe operation 38 in computer network 36. The center column headed "ARMS" is resident on mainframe computer 32 and coordinates the communication of data. The left column headed "ARMS/WEB" represents the software resident on computer but which is presented on server 28 and accessible by users through the Internet. Along the left side of Fig. 2 are designated three separate sections of operational activity. These are "reservation" followed by "open" and concluded by
25 "close". Generally, the functional descriptions are arranged in chronological order proceeding from the top of Fig. 2 to the bottom. However, some functional features are permitted throughout the entirety of one of the three periods designated at the left side of Fig. 2. One such example is the "message" function which allows messages to be sent
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- between users at one business organization 22 and branch offices 44 and others connected to the other business organization 30. Proceeding with a description of the transaction, the first set of communications allow for the reservation of the services. These can include requests for authorization or a rescind authorization request to be
- 5 sent from the service provider to the service purchaser. Correspondingly, authorizations and authorization cancels can be sent from the services purchaser to the services provider. Confirmations are communicated upon confirmation of an authorized reservation request. Authorization changes may be made and communicated from the services purchaser to the service provider. Corresponding rental transaction changes
- 10 may be communicated from the services provider to the services purchaser. As indicated, through the entirety of this process messages may be sent between users and others connected or having access to the integrated business software, as desired. The consummation of this portion of the transaction is a reservation that has been placed, authorized, confirmed, and provision is made for changes as necessary. During the next
- 15 phase of the transaction, a reservation is opened and services intended to be provided are started. Generally, and preferably for the rental of vehicles, a start and end date are established in the reservation process. However, along the way, transactional changes may be made, such as for changing the type of vehicle provided, extensions may be requested and entered from either business partner, messages may be transmitted
- 20 between the business partners, and the transaction may be terminated such as by voiding the contract by one business partner or terminating the authority by the other business partner. The term "reservation" has been used herein to refer not only to the act of placing the order but also to filling the order for services including providing the rental vehicle to the ultimate user and even invoicing for those services.
- 25 The last phase of the process involves closing the transaction. During this phase of the transaction, the contract is indicated as being closed and invoiced, the services purchaser can approve invoices, reject invoices, and also remit invoices. Such invoice remittance may also include the actual transfer of funds through an electronic funds transfer medium, or otherwise as previously arranged between the business partners.
- 30 It should be understood that this is a streamlined description of the handling of a transaction, and by no means is exhaustive. For example, much more functionality is available to the user including accessing the data base to generate production reports regarding status of open or closed reservations, preparing action item lists to allow a

user to organize and prioritize his work, obtaining information available in the system from having been entered by others which would otherwise require phone conversations which are inefficient and occupy still another person's time. A more detailed explanation of the functionality provided is found in the exhibits.

- 5 In summary, the parent invention creates almost an illusion that the services purchaser, and the great number of users at various levels of the multi-tier purchaser users, are actually part of the services provider organization in that immediate online access is provided to significant data which enable the user to make reservations for services, monitor those services as they are being provided, communicate with those
- 10 providing the services, obtain information relating to the status of services as they are being provided, and close transactions, all by interacting with the services provider business organization over that user's PC and without human interaction required by the business providers personnel. By way of contra-distinction, for many years business has been conducted on a human level by customers picking up the telephone and
- 15 calling services providers and talking to their human counterparts in order to convey information, place orders, monitor orders, including obtaining information as to status, canceling orders, questioning invoices and paying invoices, along with a myriad of other related interactions. Not only did the conduct of business in this manner entail significant amounts of human resources at both ends of the transaction, but it also led to
- 20 inefficiencies, mistakes and delays all of which increase the cost of doing business and contribute to an increased risk of services being rendered in an unsatisfactory manner in many instances to the end user. The parent invention has taken the preexisting solution of providing electronic communication between the business partners to another level by "web enabling" this system for improved connectivity, improved usability, reduced
- 25 training, enhanced mobility, and other advantages as described herein.

30 A schematic diagram of the present invention is shown in Fig. 3 and includes three levels of architecture. As shown in the first level of the architecture 50, a user 52 such as an insurance company or other user has access through the Internet 54 to the computer system comprising and incorporating the present invention. An Internet provider provides a link 56 through which Internet connections may be made to communicate with the further described system. For convenience, this Internet connection may be considered as an Internet site or portal in that a user enters a URL and arrives at this connection. A firewall 58 as is known in the art is used for security

purposes and to prevent hackers and the like from unauthorized access to the system. A first set of servers 60 are interconnected in a network 62 and may preferably include an ancillary server 64 for running load balancing software or the like to balance the load and provide redundancy amongst what may be a plurality of web servers 60. These web

- 5 servers 60 may preferably be Sun Microsystem servers running Apache web server software, or other such suitable software as would be well known to those of ordinary skill in the art. This first web server network of servers 60, 62 process the random and disorderly communications flowing to and from this system and the Internet before passing them through a firewall 66 as a further precautionary measure. This first layer of
10 architecture, identified as the Internet space/DMZ layer provides a secure interface and creates order out of the chaos of communications flowing between the system and others, as will be described.

The next layer of architecture 68 is noted in the figure as the "Enterprise private network" and is comprised of a plurality of servers 70 network connected with a network

- 15 connection 72. Again, although the choice of hardware is not considered critical by the inventors hereof, Sun Microsystem's server/work station hardware is preferably used to provide the platform for running the application software for processing the various rental vehicle transactions, as will now be explained. Attached hereto as Exhibit E are a series of functional design specifications for the ARMS/WEB application software resident on
20 servers 70 and which provide the detailed description of the operational features of the software and system. With these functional design specifications for the individual modules, it would be readily apparent to those of ordinary skill in the art that programmers of ordinary skill would be able to write software to execute these functional specifications without using inventive effort. Furthermore, the details of this
25 implementation are not considered to provide any aspect of the best mode for carrying out the invention which is defined by the claims below.

Generally, the ARMS/WEB application software permits a user to sign on and, when recognized, provides the series of menus presenting choices for the user to indicate the parameters for his reservation. A plethora of information is provided and accessible to the user through the various menus provided from which the user selects and enters data to process the reservation. An important feature of the ARMS/WEB application software is that it provides the user the opportunity to select to place his vehicle rental reservation not only with the integrated business computer system

represented by the third level of architecture 74, described below, but also to route the reservation information back through the first architectural level 50 and into the Internet 54 for transmission to a competitive service provider 76. Although the interconnection is depicted in Fig. 3 as being made through the Internet 54, the network of servers 70

- 5 configured in accordance with the ARMS/WEB application software may utilize virtually any electronic means for transmitting the reservation information to a competitive services provider 76. These include email, automated telephone, facsimile, and other forms of electronic communication. Of course, the competitive services provider 76 may itself comprise an integrated business such that the level of interconnectivity provided to
- 10 the user 52 may parallel that disclosed and described in connection with the integrated services provider system of the present invention as well as the parent invention. This integrated business capability is represented as the third level 74 of the architectural topography shown in Fig. 3 which parallels portions of that shown in Fig. 1 in that a pair of network mainframe computers, such as AS/400's 78, 80 may process reservations to and from various branch offices 82 which are geographically diverse.
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With the present invention, the Internet portal provided by the AMRS/WEB network configured servers 70 provide an Internet portal for communication with not only the integrated computer enabled business system of the resident services provider, but also a portal for placing reservations to other competitive services provider 76. Thus, the user 52 enjoys the capability of accessing multiple service providers for competitive services through a single Internet connection using a single set of protocols, menus, etc. for the conduct of this business activity. Furthermore, the software configured network of servers 70 is readily configured in Web Logic to adapt to changing user requirements, data requirements, unique competitive service provider requirements, and other upgrades or modifications in a convenient manner by simply modifying the software resident therein. No special browser software or other interface software is required by the user and any special interconnecting software or server/hardware requirements may be satisfied as between the service providers such that the user is presented with a seamless interconnection. As the present invention is configured and works well with the integrated business and computer systems as disclosed herein, it is anticipated that such interconnection and usability may be readily translated to any other such integrated computer system as might be found in other competitive service providers, as would be apparent to those of ordinary skill in the art. Thus, with the present invention, a user is

provided with Internet access through a single portal to a plurality of service providers and, to the extent possible, to their integrated computer business systems.

- Various changes and modifications to the preferred embodiment as explained herein would be envisioned by those of skill in the art. Examples of these changes and
- 5 modifications include the utilization of computer systems configured in any one of a myriad of ways using present technology alone. For example, mobile computers are presently available and wireless technology could be used to extend the integrated business network of the services provider, as well as match the mobility needed by the various users connected to and using the present invention. The particular software,
- 10 and various aspects and features of its design, have been adapted for particular application to the vehicle rental business. Of course, computer software applications satisfying other business needs would necessarily require adaptation to their particular business models. Thus, it is envisioned by the inventors herein that the various software programs described herein would be matched to the particular business application to
- 15 which the invention is utilized. These and other aspects of the preferred embodiment should not be viewed as limiting and instead be considered merely as illustrative of an example of the practical implementation of the present invention. These changes and modifications should be considered as part of the invention and the invention should be considered as limited only by the scope of the claims appended hereto and their legal
- 20 equivalents.

EXHIBIT A

See the file "Exhibit A.txt" submitted on the incorporated compact disc.

25 **EXHIBIT B**

See Figures 4-91.

EXHIBIT C

See the file "Exhibit C.txt" submitted on the incorporated compact disc.

30 **EXHIBIT D**

See the file "Exhibit D.txt" submitted on the incorporated compact disc.